



IN SEARCH OF EXEMPLARS OF CLIMATE ACTIONS

*A Mutimethods Research
Approach*

Danilo Rueda Cruz



UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY
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Danilo Rueda Cruz

IN SEARCH OF EXEMPLARS OF CLIMATE ACTIONS: A MULTIMETHODS RESEARCH APPROACH

Dissertation Adviser:

Alexander G. Flor, Ph.D.
Faculty of Information and Communication Studies

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Acceptance Page

This dissertation titled **"IN SEARCH OF EXEMPLARS OF CLIMATE ACTIONS: A MULTIMETHODS APPROACH"** is hereby accepted by the Faculty of Information and Communication Studies, U.P. Open University, in partial fulfillment of the requirements for the degree Doctor of Communication (DComm).


ALEXANDER G. FLOR, PhD
Chair, Dissertation Committee

07/01/2022
(Date)


JEAN A. SALUDADEZ, PhD
Member, Dissertation Committee

07/01/2022
(Date)


MELINDA D. BANDALARIA, PhD
Member, Dissertation Committee

07/01/2022
(Date)

FELIX LIBRERO, PhD
Member, Dissertation Committee


DR. ALEXANDER G. FLOR
Dean
Faculty of Information and Communication Studies

07/01/2022
(Date)

**IN SEARCH OF EXEMPLARS OF CLIMATE ACTIONS: A MULTIMETHODS RESEARCH
APPROACH**

ABSTRACT

This dissertation consists of two parts.

First is exploring a phenomenon whereby this paper posits a "disconnect" or "connect" between beliefs and climate change actions. On the one hand, we see another aspect of the same phenomenon wherein we see a "connect" between beliefs and environmental actions, while at the same time even going beyond it and becomes exemplars of climate actions. These **exemplars** are people who do, communicate, and "live" sustainable lifestyles.

Second, it examines the distribution of this "exemplar" phenomenon in our chosen respondents' place or location. Preferably, we can find future leaders (i.e., **exemplars of climate actions**) at the University of the Philippines, Los Banos. [*Exemplarium* (Late Latin) to a combination of *exemplaire* (Old French) and *example* (English) to **exemplar** (Late Middle English). Equivalent to Filipino terms of **huwaran, tularan, halimbawa, modelo**, or a thing or person to be copied or imitated.]

The initial research through qualitative research design examines and connects the "problematic lived experience" (Denzin, 2001) of Greta Tintin Eleonora Ernman Thunberg, the 17-year-old (now) Swedish environmental activist, and her experiences and choices as gleaned from the documentary film (1 hr., 37 min) entitled "I am Greta." Likewise, the knowledge she gained from these past experiences and choices and how this connects to the study's central concept of **exemplars of climate actions** and whether she is one?

These exemplars (ordinary people who advocated for a better environment) with presumably high "knowledge" scores and low carbon footprint impact vis-à-vis the environment are perceived as the "catalyst," transition person, or change agents in our desire to better the environment. This biographical and qualitative study through the lens of **interactionism** (Denzin, 2001) will look in-depth at the colorful life of Ms. Thunberg, an ordinary school kid in Sweden afflicted with Asperger syndrome (a form of autism), may help us explain not only her contribution to the climate change movement but also her communication savvy in framing the climate change crisis. Pragmatism regards communication as the underlying basis of "social coordination" (Russil, 2008), and on that point, we are witness to what climate change researchers are now calling the "Greta effect." Young people from across the globe have been on a "school strike" and telling their respective leaders bluntly for change in how we treat the environment. If *communication*, as defined by Griffin (2011), refers to the process of interaction in creating and interpreting "messages" that will draw out meaningful (mine) responses, then Ms. Greta may genuinely be the embodiment of *exemplar of climate actions*, this paper is in search of after all.

Moreover, her 'steering' the climate change discourse to focus on the children's future may augur well for climate change activists and those in power alike to make those positive steps to mitigate its dire effects on the planet. Dr. Jean Saludez suggested during the defense the appropriateness of using cybernetics (loosely translated from Greek) and meaning "a helmsman who steers his ship to port." (Mindel, 2000), as one of the more critical communication lenses of this study may indeed be

genuinely relevant. Exemplars "steering others" towards a "goal" that may bring back to us the peace of mind that our children will be okay in the years to come.

Going back to the *interactionism* lens before the study segue to cybernetics, *interactionism* which falls under the "phenomenology" category in communication studies, is seen as an "honest, reciprocal, and transparent dialog or interpersonal interaction" between or among equals. (Craig, 1999, p.140).

Another salient communication tradition in which things come to have *meaning* through social interaction and worth mentioning is one in the social-cultural tradition, echoed or represented explicitly by the "**symbolic interactionism**" (Blumer, 1969) perspective, individuals "shape society and are in turn shaped" by society through meaning that is reproduced through interactions (with others). (Blumer, 1969 on George Herbert Mead's work on interactionism and the social world's subjective reality from a pragmatist perspective.) Thus, we shape others and the world and shape our sense of self. Briefly, we reproduce meaning, including how we see ourselves with others through communication, ultimately determining our behavior (Wood, 1992; Faules & Alexander, 1978). From this perspective, communication is an agreement, consensus, and our experiences, creating and telling us its meaning.

[An important note: Phenomenology, as championed by Alfred Schütz and **symbolic interactionism** as Blumer represents; both believe "social reality" exists yet see it from a different perspective. The latter understands "social reality" as outside the individual, while in the case of Schütz sees and understands "social reality" as originating from inside the individual, specifically the **consciousness** (Verhoeven, 1991).]

We will see some of the qualities of **exemplars of climate actions** in this qualitative part of the dissertation. One salient quality is the exemplar's overall knowledge of sustainable actions, including its effectiveness in their daily lives. Another quality is the exemplar's acting as a role model and leading with a commitment to a sustainable lifestyle in their person; their ability to communicate to others on sustainable solutions and related concepts like "leading without authority" (Heifetz, 1994) while helping their community engage in climate change problem and solutions and collectively become the catalysts for change.

Subsequently, the next part of the dissertation aims to examine whether individuals' awareness, perception, or feelings about climate change and knowledge of specific actions taken, including their effectiveness in addressing environmental problems, significantly influence environmentally friendly behaviors in general.

Additionally, it examines individuals' environmental impacts through their carbon footprint estimates. It will then determine the quality of their environmental behaviors as either *low impact* (i.e., less harm to the environment) or *et supra* (more), meaning they are considered **exemplars** and engage in meaningful actions and endeavor to communicate and influence others. In contrast, a high-impact *lifestyle* contributes to harm to the environment.

Overall, their CO₂ scores or estimates and their knowledge test are juxtaposed together and will ascertain whether it will result in the following ideal scenario: the lower one's impact or harm to the environment, the greater the knowledge score test. This combination of CO₂ scores and the knowledge test shows how sustainable lifestyles are produced. Ideally, an "et supra" (Latin, more) standing in the personal carbon estimates coupled with a high score in the knowledge test is called an "exemplar." (i.e., excellent model).

Once again, the study finds meaning in the communication tradition dubbed cybernetics, whereby communication is seen as a "system of information processing and control and feedback." Cybernetics as a field has a quantitative component due to carbon footprint and knowledge and effectiveness test (feedback, Mindel, 2000) as an analytical tool in our case studies. As a standalone tool and taken aside from the central survey that will generalize our phenomenon to a large population size, it becomes qualitative.

In contrast, high-impact carbon footprint estimates of individuals and low test-score signal unsustainable lifestyles for the participants.

Action-related knowledge and effectiveness knowledge, including self-knowledge (independent variable), is needed for action, a critical antecedent, or variable for any environmentally friendly actions to occur (dependent variable).

Consequently, this last part will enable us to test our instruments and pinpoint or discover these individuals considered ***climate change exemplars*** in our midst. Likewise, serve as "feedback" on what else or how else we can improve on making one's low-impact lifestyle and, ergo, helpful to the environment. Thus, bringing the study closer to the crystal-clear communication theory of the cybernetic discipline, which is purveyed as responsible for connecting the dots between one's beliefs and climate actions. That is, the consequences of our previous actions are taken as "inputs" for further action into the future (more effective). A core concept in cybernetics where 'causality' is seen as circular. Others would prefer to call it feedback and is dictionary-defined as "a person's performance of a task, etc. which is used as a basis for improvement."

In this dissertation, we look for exemplars of climate actions with students from the University of the Philippines, Los Baños. However, considering the low response rate (most likely because of the present pandemic and the unavailability of students at the university, when we ran the survey for a period of one month starting from February 10 to March 15, 2021) of the 25 respondents who answered the survey (our target was 375 respondents), we embarked on a ***case studies*** instead as explained in the last pages of Chapter 2.

As mentioned earlier, we recruited four (4) respondents from the survey, answered by 25 university students. Furthermore, the study requested one respondent from the U.S.'s permaculture field, took the survey, and reflected on questions pertinent to this research. The latter has proven our study's assumption that there are exemplars. Three of the four respondents from the university were found to have a

low impact vis-à-vis their carbon footprint and **scored high on the knowledge test**. One scored high impact (high carbon footprint estimates) but received a high knowledge score.

Individuals with a low impact (scored between 50 and 60) are shy away from an exemplar score of 40 to 50. Similarly, the former is considered a sustainable lifestyle. In addition, low-impact individuals are well informed of the **action-related knowledge, effectiveness knowledge, and system knowledge** relevant to pro-environmental actions.

This study via **case analysis** also noted exemplars' reliance on framing and empathy in their communication. Empathy can be described as the exemplar's capacity to understand or feel what the other person is experiencing. Empathy in communication creates an atmosphere conducive to avoiding conflict and forms a basis for understanding one another in their interactions. Framing in Greta's case (in the documentary we examined thematically) shows the protagonist's reference that climate change is about the **children's future**, and thus present dispensation has to be responsible and do something about it now before it is too late. All these align with the communication study's lens we are using in this research – we act according to how we interpret situations, and through interactions with one another and our use of language, we give meaning to the social world.

Overall, effective communication through proper framing and use of empathic language in our interaction with others, knowledge of environmental actions required, and lower carbon emissions in their lifestyle **connect** our beliefs with pro-environmental actions, both at the individual and collective levels. At the same time, attempt to explicate the above relationship through the framework provided to us by cybernetic's "conversation theory," **where knowledge is made possible via conversation**. A continuous feedback loop in our conversation with others (including ourselves) is utilized as a 'constructive input' for improving how individuals see themselves and act vis-à-vis the environment.

Thus, environmentally friendly behavior, which is our dependent variable, is a function of the following critical, independent variables: awareness of climate, as well as its perception, including a trifecta of knowledge types, namely, system knowledge, action-related knowledge, and effectiveness knowledge, are found in this study as being responsible for climate actions.

Essentially, the study can be categorized as **multimethod research** (Creswell & Plano., 2011; Johnson & Christensen, 2014; Tashakkor & Teddlie, 2010; and Brewer & Hunter, 2006), combining the use of more than one method of data being collected to examine the exemplar phenomenon. Using this research approach and not the traditional 'monomethod' one is why we can denote the **pragmatist paradigm or viewpoint** (Kaushik & Walsh, 2019) as the basis of our findings. Lincoln et al. (2011) said that the term "paradigm" is denoted as the philosophical assumptions or "the basic set of beliefs that guide the actions and define the researcher's worldview in social research."

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Dedication

I dedicate this dissertation to my wife, Meserna Deogracias Cruz, UPMBA. My mom, Pacita Rueda Cruz, and brothers and sisters. Their support, encouragement, and constant love have sustained me throughout my life. I wish my dad, Ilustre Cruz, is here to see the seeds he planted long years ago with his wishes that all eight of us go to the University of the Philippines. Thank you, dad.

To the readers, let us all become 'exemplars' in combating climate change so that future generations may look to us with respect and honor.

Let me begin with four words that will provide the context for this week, four words that will come to define this century. Here they are: The Earth is full. It is full of us; it is full of our stuff, full of our waste, full of our demands.

Paul Gilding, The Earth Is Full, TED Talk 2012

"Let us begin again, for up to now, we have done little or nothing."

St. Francis

Chapter 1

THE PROBLEM AND ITS SCOPE

Introduction

The study will examine whether individual environmentally friendly actions are carried out in their daily lifestyle by those who believe in climate change and are cognizant of all its predicted harmful effects on all people's health and wellbeing worldwide. Moreover, assess whether these individuals doing environmental friendly actions actively seek ways to influence others in imbibing environmental friendly behaviors in their respective lifestyles. Wynes and Nicholas (2017) posited that the combination of actions, that is, individually and collectively, must respond to drastically reducing carbon emissions.

Background of the Study

The need for more lifestyle and behavioral shift

Last year, the Intergovernmental Panel on Climate Change (IPCC) recommended more studies on "lifestyle and behavioral changes," which they consider lacking in our present arsenal to fight climate change.

"No study addresses behavioral change strategies in the relationship with mitigation and adaptation actions in the 1.5°C context.... Limited knowledge of GHG emission reduction potential for diverse mitigation behaviors worldwide".

".... Lack of insight into what can enable changes in adaptation and mitigation behaviors in organizations and political systems." (de Coninck et al., 2018).

Meanwhile, CO₂ emissions (and other greenhouse gases such as methane) are driving climate change worldwide, especially in developing countries, as in the Philippines' case, are rising. In the world's carbon dioxide emissions from the consumption and flaring of fossil fuels study circa 1980 – 2006 (million metric tons of carbon dioxide), there has been a 20% increase since 1996 in

emissions per capita. (Carbon emissions per person by country, Retrieved from [this link](#))

The Philippine setting vis-à-vis climate change

The Global Peace Index (GPI) recently reported that the Philippines topped the countries facing the highest risk of climate change hazards. The Institute for Economics and Peace (IEP) said, "Climate change amplifies the risks of breakdowns in peacefulness by acting as a threat multiplier." Although climate change has no direct bearing on overall peace (absence of violence) in a particular country, the study found that climate change has no direct bearing on overall peace (absence of violence). Climate pressures may adversely lead to "resource availability, affect population dynamics and strain societal institutions," which directly impacts a nation's socio-economic and political stability. (Mateo, 2019).

It should be noted that most Filipinos perceive climate change as a health threat and that pollution and carbon emissions play an essential role in our overall health. (Roberto, 2017). Overall, vis-a-vis climate change and their perceptions of it, as per PEW Research Center's Spring 2018 Global Attitude Survey, Q22d., Filipinos, compared with the other countries surveyed, see climate change as a major threat. When asked to fill in the statement below:

Global climate change is a ____ to our country, 67% answered "major threat," 18%, and 13% responded with "minor threat" and "not a threat," respectively. According to the same study, the median was 68%, 20%, and 9%, combining the scores of the countries surveyed. (Fagan and Huang, 2019).

Global health and climate change

Watts et al. (2018), in their 2018 report of the Lancet Countdown, spoke of the negative impact on advances made overall on the global health and development works and added that "mitigation and adaptation actions will have a positive impact on public health and wellbeing." The more pollution in our environment, the more we breathe unhealthy air. The following section describes unhealthy air and its connections to health.

Pollution, health, and climate change

The harmful effects of carbon emissions and other pollutants in the air have been known for many decades. In October 1948, in Donora, Pa, a warm air pocket prevented air pollutants' escape, causing the death of approximately 40 people. These crises have prompted scientists to investigate the link between air pollution and health. Today, studies are being undertaken to understand the connection between climate change and how air quality interacts, including its consequences on public health and the environment. Studies such as these provide current evidence that future

temperature increases due to climate change will increase air pollution levels and the health burden on people's health and wellbeing. (EPA, 2019).

What is Climate change?

With continued use (more akin to over-dependency) and the burning of fossil fuels to power our modern world, these greenhouse gases (so-called "externalities" of the fossil fuel and animal agriculture industries) are released into the air. These excessive greenhouse gases subsequently trap energy from the sun and cause the earth to warm up. (Visualize the discomfort of getting into your parked car under the sun with all the windows closed.)

In a report called the Attribution of Extreme Weather in the Context of Climate Change (National Academies of Sciences, Engineering, and Medicine, 2016), it is said that warming of the atmosphere has produced a pattern of frequent and more intense weather events and is lately connected with climate change. (Although the same National Academies of Sciences in the past have been hesitant to attribute these events to climate change). But advances in climate modeling (Temple, 2019) and evidence such as this connecting human carbon emissions to climate change.

"Warming increases the likelihood of extremely hot days and nights favors increased atmospheric moisture that may result in more frequent heavy rainfall and snowfall and leads to evaporation that can exacerbate droughts."

Philippine Agriculture and climate change

In the Philippines, a newly industrialized country, and with its economy transitioning from basic agriculture to one based on services and manufacturing (Bożyk, 2006 and 2019), most of its citizens currently (sizeable 26.0 percent of the labor force) support themselves through agriculture. (Farming, fisheries, livestock, and forestry sectors). These people's works account for 7.4 percent of the total GDP (the agricultural sector grew by 1.7% in 2018) (Economy of the Philippines Key Indicators. DTI 2018).

Thus, considering the importance of agriculture to its economy, our nation needs to grapple not only with predicted extreme weather events, that is, devastating typhoons and tidal surges. [Note: Extreme weather events are attributable to climate change warming of the atmosphere and its ability to hold more moisture, 7 percent more for every 1.8 °F (1°C) as reported by Coumou and Rahmstorf (2012)].

The above scenario will affect growing food and achieve a higher yield of food for harvest, either via technology or by opening more agricultural spaces in the Philippines to feed the ever-growing population. (The 2019 population is 108.12 million, growing at a steady rate of 1.72% since 2010). Temple (2019), a senior editor for energy at MIT Technology Review, asserted in the latest study that the growing population would add more to the opening up of more agricultural lands worldwide.

This is to accommodate the ever-increasing population and the food needed to feed these people, consequently adding more carbon and methane emissions into the air.

According to the IPCC Special Report entitled Climate Change and Land (August 2019), co-chaired by Jim Skea, food production, agriculture, forestry, and other land use accounts for a quarter of the total gas emissions worldwide.

Where the discussion of climate change is now

Climate change is a complex subject matter that, even before this study, has been a subject of much debate and scrutiny of its scientific basis. Questions related to predictability or certainty have been debated.

However, this remains to this day. Nevertheless, most information deficits, including how to overcome the barriers to communicating the science behind climate change, are slowly being filled up by experts in climate science and communication studies.

(And now even becoming a mainstream topic in mass media and other public discourse venues).

Currently, a consensus among scientific studies has helped in the public's understanding of climate change. Evidence is piling up, facilitating the public discourse to morph from what used to be the stance in the past that "there is no problem" to present-day reflection on "who is responsible for solving this problem." (100 companies cited by Riley, 2017 and Engel, 2019 as responsible for 70 % of the world's greenhouse gas emissions since 1988, according to one report.).

Lately, it has come to a point when the public eye's debate has nestled to more people bringing the argument.

".... We are not responsible, and if we are and can do something to act, it will not matter at all considering the gravity of the problem... Besides, it will be too expensive to fix the problem as is. The government can do something about that, but we cannot do that much. There is a lot too that we do not know."

The need for individual action

In contrast, Aliya Haq, the deputy director of NRDC's Clean Power Plan initiative, believes that real change in how we deal with climate change can only come about when individuals act. "There's no other way if it doesn't start with people," the deputy director qualified that individuals' contributions to solving the problem are both inevitable and necessary. (Denchak, 2017).

The need for a combination of actions both individually and collectively

In Wynes and Nicholas (2017), entitled: The climate mitigation gap, both authors concluded the need for a combination of actions individually and collectively to adequately respond to reducing carbon emissions to near zero in the coming years. The study also outlined the high, average, and low impact actions required to affect these critical changes. Although most of their "effective" environmental friendly actions necessitated a lot from people and thus remained controversial. The most effective is "having one fewer child," "living car-free," "avoiding air travel," and adjusting to a plant-based diet. The study they clarified will need to focus on a "target group belonging to adolescents" or younger people who are about to establish a lifelong pattern in their lifestyle behaviors and habits for these to be effective.

Explaining the disconnect

Many explanations or studies are being put out or documented recently (see Gifford's 2011 study). Gifford posited that these beliefs about environmentally friendly actions or behaviors do not come to a realization. As posited initially by Leon Festinger in 1957, cognitive dissonance theory certainly plays a role in climate change discourse. Gifford noted the above "rationalization" (Smith & Mackie, 2007) that we can only do so much, and shifting to institutions and government, and the burden is the hallmark of cognitive dissonance whereby individuals cannot fathom the thoughts that their daily and ordinary lifestyle regimens have anything at all to do with climate change. (Akpan et al., 2019).

Gifford mentioned individuals' inability to act according to their environmental concerns or beliefs because they have little control over the outcome. Suppose the government cannot provide the infrastructure, initiative, and catalyst for sustainability matters in their respective communities or localities, including the incentives to engage in environmentally friendly behaviors. In that case, this will not prompt individuals to work on environmentally friendly activities or behaviors.

Leiserowitz (2006), cited by Landry et al., 2018, noted a salient disconnect between concerns or beliefs about climate change and pro-environment actions. A study in 2014 (Leiserowitz et al.) determined that "helplessness" is the main factor in the disconnect between beliefs and actions.

Other studies by Kollmuss and Agyeman (2002) posited that these barriers to individuals doing environmentally friendly behavior are mainly because of "old behavior patterns." Our living in the moment and tackling those day-to-day problems as it comes along and the quest and maintenance of our current lifestyle (which is convenience among choices) prevent us from examining the dire consequences of our "inactions" or lack of sustained impactful actions on carbon emissions.

Whether it is the attitude, motivation, and myriad other reasons complementing one another and as best explained by past and current studies on how sustainable lifestyle is reproduced, promoted, or acted upon, we have no other recourse but to put out the best possible explanation for the disconnect. The following section will lens this world view through symbolic interactionism (Mead, 1934; Blumer, 1969) and similar

latter-day useful variants for conducting qualitative research in the form of interpretive interactionism (Norman Denzin, 1989). The pragmatic school of thought heavily influences both perspectives. Communication in this context determines behavior.

Trifecta of indicators: action-related knowledge, effective knowledge, and Personal carbon footprint

In contrast, this study examines whether the lack of information and understanding of these environmentally friendly behaviors are the factors that cause or limit individuals from acting on their beliefs. Also, given the right set of information or knowledge categorized by Frick et al., 2004 as "action-related and effectiveness knowledge," can they, in reality, make the difference at all.

Previous studies have concluded that the problem's awareness and perception serve as the foundation of our beliefs. Another essential precondition for environmental actions to happen is that of "knowledge." Krasny (2020) best said these when she reflected on the earlier theory of Frick et al. in 2004:

I might know about the science of climate change and why the changing climate is a threat, but I do not know what I can do about it. I may even know about several potential actions I can take, but do not know which actions will be most effective.

Coupled with this, when we think we are climate change believers, we tend to hold overly favorable views of our abilities not to harm the environment; we believe we are doing our part when we are not. (Dunning-Kruger effect) Thus, this study's primary focus will examine their carbon footprint estimates and their overall knowledge of environmentally friendly actions required for sustainable living. This "overall knowledge" is what Frick et al., 2004 and Krasny 2020 termed "system knowledge, *action-related knowledge*, and *effectiveness knowledge*." These three indicators are our means of measuring environmentally friendly behaviors.

The need for "et supra" or doing more in sustainable living

Later in the study, we will come across terms like "et supra" or "exemplar," and at this point, we need to introduce these terms. We define these terms as doing "over and above" than what we are doing regarding our daily sustainability living. Not only are we acting on our beliefs, but we are also actively seeking to ***influence*** others too.

The study also determines what causes the disconnect, pushing the envelope, so to speak, and allowing individuals to engage in more environmentally friendly activities and become highly involved with agenda building (Cobb & Elder, 1971) with their respective roles in society. Nisbet (2009), in *Communicating Climate Change: Why Frames Matter for Public Engagement*, opined that proper climate change framing would bring about diverse individuals together on common ground, shaping their environmentally friendly activities, helping one another understand and mobilizing governments to do something about this problem.

The amount of the environment, if we consider the ecological footprint (E.F.) necessary to produce all the goods and services collectively in support of the choices we make in our lifestyle, unfortunately, is one of "deficit," meaning it is not sustainable for a long time. Moreover, this is seen both from a global perspective or solely in the Philippines. Philippines' biocapacity deficit is at -0.8 gha or global hectares per person). ("Open data platform" Retrieved 2/13/20). The 2016 world-average ecological footprint pegged at 2.75 global hectares per person. This figure (2.75 gha) less 1.63 global hectares (gha) per person amounts to a deficit of 1.1. global hectares per capita, respectively. ("Open data platform" Retrieved 2/13/20)
The world-average biocapacity in the above comprises the biologically productive areas essential to providing everything we consume, including the byproducts/waste of what we produce and consume.

Having this large footprint versus the earth's biocapacity means that we are overexploiting the earth's ecosystem with our demands for food, the materials needed for our shelters, the space for all the houses, buildings, and roads. This overdemand is far more than that necessary for modern living. This includes the inability of nature to absorb excess carbon dioxide and other waste materials using fossil fuels.

On a personal level, the same ecological footprint or impact on the environment, as explained above, can be estimated through a modified personal carbon footprint designed for this study.

The proverbial phrase (Merriam Webster), "if it ain't broke, do not fix it," comes to mind. With the above deficit showing how unsustainable individuals' lifestyles and behaviors can be, the need for a shift in behavior or "fixing what is broken" will undoubtedly help in the problem. Individuals interact, educate one another, inform, persuade, or a better term, influence one another. Moreover, mobilizing and helping solve the critical problem facing global societies may also drive the trajectory of public opinion toward making the decision-makers in our midst act and sustain the actions required to solve it.

Overall, this paper is borne out with the vital thought that perhaps there are essential doable practical things and lifestyle choices we can make about this problem. (McGrath, 2018, as cited in the IPCC report).

Communication, the big picture

The study's main contribution to the current climate change problem would bridge the abyss (though not insurmountable) between beliefs and environmental actions and sustain these actions in the direction of going over and above (et supra) and influence others. Thus, collectively get involved in influencing one another and actively engaging in policy processes and decisions to create a bright future for our planet.

The 2019 documentary Ice on Fire premiered to a standing ovation at the Cannes Film Festival on May 22. HBO later released it, showing us what science and technology could address this problem. The documentary shows that if our leaders,

scientists, and industry work together, they can positively address global environmental issues. Therefore, individual lifestyle changes worldwide can pitch in or contribute to mitigating the effects of climate change.

Standing on the shoulders of three professors

The latter can only come to fruition if we put the problem from a proper perspective and view that communication is the front and center to solve issues and problems connected to climate change. Communication's goal is to build mutual understanding (Flor & Flor, 2017 on Kincaid's Convergence Model of Communication) about the causes of inactions and address these communicatively.

Thus, this early stage of the study hints at communication as an ongoing process, a constant interaction of two or more actors or parties striving to come to an "understanding." Both are responsible for the 'meaning' as they exchange messages and feedback back and forth. Most importantly, this communication model (Kincaid's) explains a fundamental concept for communication to come to an understanding (mutual), and this what Kincaid termed as the "field of experience" (knowledge and the experience which the source is in possession and which affects both 'message creation and meaning' significantly. Briefly, we can explain this as knowing where the message's source is coming from or their background or social behavior. The source's social behavior is essential in this regard for communication to work. (Kincaid, 1979)

Moreover, this study presupposes that we can create a future society that we all want best for our children through communication, extending our take of Prof. Saludadez's communicative constitution of organizations or the CCO perspective (Taylor et al., 1996) seen in the U.N.'s IPCC workings. The latter seeks to combat climate change through the publication and dissemination of scientific studies hastening solutions. Notably, before 1988, the IPCC was still on the drawing boards and is now heavily engaged in disseminating scientific information to combat climate change. A "text and conversation" interaction as posited by Prof. Saludadez's mentor James R. Taylor. This communication studies perspective avers that communication has to breathe life before an organization can come to life.

System thinking, the bigger picture

System thinking may pave the way for seeing these intricate connections, leading to a bigger picture.

Relevant to the uncertainty and complexity of the present study on climate change is a remarkable statement made by the late Russel Ackoff (2006), wherein Ackoff opined that some aspects relevant to the future might not be subject strictly to our control or influence. Nevertheless, if "we and others collaborate," we can exert control or influence over it. Ackoff cited the problem of reducing environmental pollution (Page 4, thinking about the future) through measures imposed collectively by nations. In the same vein, in our study, collectively as individuals, we can drive **public will or discourse** toward sustainable lifestyle changes and relevant measures

needed to minimize the use of fossil fuels. Additionally, the government can maximize renewables' use by creating the required infrastructure for a greener environment. Ackoff was a pioneer in systems thinking, operations research, and management science and spoke of the importance of seeing the interrelations and interdependency of parts to the whole. A change in one part of the system may affect other parts or even the entire system. The best way of looking at this world is through system thinking, whereby we are to "expand" the systems to be understood. Individuals with a 'system thinking mindset' are more prone to believing in climate change and becoming part of the solution. (Ballew et al., 2019)

The late Professor Emeritus Dr. Felix Librero (2013) opined in a review of the author's works on developmental communication the importance of using "system thinking." (Developmental communication discipline to which he belongs). Similarly, we want to see the "whole" of the problem and its interdependencies in the present study. It also includes examining other related issues in society that may influence or even hinder solving climate change.

The present research takes this important counsel in mind: environmentally friendly behaviors in the context of the whole human activities are heavily influenced and, at times, "dictated" by entities bigger than us. For instance, the government and the creation of infrastructure are needed to promote sustainable living. Includes the availability and promotion of alternative technology and its development through government incentives and likewise serves as an enabler to transition from fossil fuels to a better renewable fuel, as in Iceland.

These macro-levels and their relations to environmentally friendly actions on the individuals' level (practitioners) elevated to the level of collective actions and combined worldwide for it to bear fruit.

Therefore, this study took a long time to construct the background of our research. Its sheer complexity and effects and the solutions generated to cover all human activities from food production (agriculture), technology, economics, and creating policies, including energy generation, power our homes and industries, and others. In short, it is life itself when we talk about addressing the problem of climate change.

In this study, system thinking will become a tool for diagnosing a problem (converting beliefs into actions) before undertaking a much bigger action or intervention in society. It allows us to see the parts and proceed from what Senge put forward in his famous book, *The Fifth Discipline* (1990) tells us that we are connected, and there are diverse ways to solve a problem. We can identify, reflect, and ask alternative questions instead of the traditional mode of inquiry, where we only examine or ask the question, what happened? The shift in the system perspective asks the critical question: What has been happening? (This question detects the patterns or "pattern perspective" familiar to a problem in both its parts and subsystem). We then ask the crucial question, what is "causing" this phenomenon to happen? Alternatively, what Senge called the "structure perspective'." (Senge, 1990).

Research gap we need to fill with the present study

Considering that all the preceding discussions harked the complexity of answering the present dilemma of connecting our beliefs with the lack of environmentally friendly actions in our lives, this study investigates whether there is a disconnect between beliefs and environmentally friendly actions in climate change ***relative to the Philippine experience***? Ordinarily, people presume that with our beliefs, we follow our actions in support of those beliefs. Pierce (1877) surmised that "belief" is what disposes us to behave or act in a certain way. Thus, to profess our belief about the harm our actions are doing to the environment and not act on it will be inconceivable. Pierce added that beliefs usually endure, and only when confronted with doubt, that an individual is once again to arrive at some beliefs capable of guiding our actions in the future.

The more significant take of this study is to answer the question: if other believers can do it and become "exemplars" in their own right, why can the rest of us or all of us become one in helping the environment through practical lifestyle changes?

Purpose of the Research

The purpose of this two-phase study of the sequential exploratory mixed-methods type is first to make an interpretive or biographical study of an ordinary teen turned into an effective climate change activist. Moreover, examining whether this young person's lived experience (in reality, a child) is equivalent to our climate change exemplar concept- and their identity and role. Then, we follow up with an online survey and find these "exemplars" in our midst. The quantitative statistical results from a sample will be drawn from students of UP Los Baños. Not only will the latter help explore the concept of exemplars in more depth. It will also be the study's means of testing our instruments in our desire to locate these respondents capable of doing exemplar works for the environment. Additionally, the quantitative research questions or hypotheses will address the relationship between personal carbon footprint estimates (independent) of the participants and their knowledge (independent) or what actions or behaviors they take to address environmental problems.

Furthermore, how effective (independent) is this knowledge vis-à-vis environmentally friendly actions (dependent). A comparison of these variables will be conducted using 375 online participants in a survey at UP Los Baños. (Or lower, depending on the committee approval).

This study cannot guarantee a substantial number of respondents considering the difficulties in a pandemic schoolyear at UPLB to answer the survey-cum-carbon footprint measures/ action-related knowledge and effectiveness tests. The latter (CO2 footprint, knowledge, and effectiveness tests minus the survey questionnaire) will still serve its purpose as an analytical tool for doing case study analysis of respondents who completed the whole or combined survey and tests. The cybernetics' tool of trade will serve as 'feedback' on the knowledge and experience of those considered exemplars or those who would be exemplars in their lifetime. A 'qualitative and qualitative' research or ***multimethod*** research is thus in order.

A need to clarify the sub-title of this study: A Pragmatic Paradigm (Multimethod) Research Approach

Kaushik and Walsh (2019), in *Pragmatism as a Research Paradigm and Its Implications for Social Work Research*, said of **paradigm** (citing Lincoln et al., 2011) as alluding to the philosophical assumptions or the entire set of beliefs that help guide the actions and explain the researcher's Weltanschauung or worldview. Creswell and other authors posited this worldview as synonymous with the term paradigm as used in social research. (Kaushik and Walsh, 2019)

Additionally, Kaushik and Walsh spoke of the various paradigms shaping and organizing the modern social research approach, such as post-positivism, constructivism, participatory action frameworks, and our present focus: pragmatism. Moreover, each paradigm we mentioned is essentially philosophical in essence and, as Dr. Saludadez in her lecture once mentioned as encompassing common elements that are opposition at best with one another. The common elements constituting a unique paradigm are the following: "**axiology**—beliefs about the role of values and morals in research; **ontology**—assumptions about the nature of reality; **epistemology**—assumptions about how we know the world, how we gain knowledge, the relationship between the knower and the known; **methodology**—shared understanding of best means for gaining knowledge about the world; and **rhetoric**—shared understanding of the language of research." (Kaushik and Walsh, 2019, citing Creswell 2009 and Lincoln et al. 2011).

Each paradigm we mentioned constitutes a different perspective on the axiology, ontology, epistemology, methodology, and rhetoric of research. (Kaushik and Walsh, 2019)

Pragmatism as a paradigm holds claim to bridging the break or divide between the "scientific method and structuralist orientation of older approaches and the naturalistic methods and freewheeling orientation of newer approaches." (Kaushik and Walsh, 2019 citing Creswell 2013).

Pragmatism thus embraces a multiplicity of methods, and researchers of this perspective or paradigm ought to use the "philosophical and/or methodological approach" that best explains their particular or unique research problem being explored. (Kaushik and Walsh, 2019, citing Tashakkori and Teddlie 1998).

Pragmatism is often connected with mixed-methods or multiple-methods (Kaushik and Walsh, 2019 citing numerous authors on the matter: Biesta 2010; Creswell and Clark 2011; Johnson and Onwuegbuzie 2004; Maxcy 2003; Morgan 2014a; Teddlie and Tashakkori 2009).

Pragmatism's main focus is all about the consequences of the research and the research questions rather than on specific or exclusive methods alone. It can combine qualitative and quantitative and qualitative and qualitative or quantitative and

quantitative approaches depending on the phenomenon or research questions (researcher). (Kaushik and Walsh, 2019 citing Creswell and Clark 2011)

Objectives of the Study

This study aimed to meet the following goals:

1. To explore the concept of **exemplars** of **climate actions** as seen in a climate change activist's life and determine how environmentally friendly actions are reproduced in life.
2. To ascertain or measure peoples' carbon footprints and assess whether their beliefs about climate change are being translated into impactful, environmentally friendly actions.
3. To examine whether there are specific barriers, if any, to acting on beliefs about climate change such as lacking in knowledge of "action-related knowledge and effectiveness knowledge" types – these are knowledge of specific or relevant actions and how effective these actions are in addressing environmental problems.
4. To determine (future) workable communication and educational strategies that will strengthen the learning and practice of environmentally friendly behaviors and increase individuals' engagement.

Significance of the Study

This study is considered significant for the following reasons:

Climate change is a threat to humans. Mounting evidence based on past scientific predictions of continuous burning of fossil fuels is now seeing these phenomena including extreme weather events, frequent wildfires in the U.S., more protracted periods of drought, more intense heatwaves in some areas, frequent and intensified tropical storms, glacier shrinking in size. Including the earlier breakup of ice on rivers and lakes and loss of sea ice, accelerated sea-level rise, and early spring. These extreme weather events include the thawing of permafrost (Green, 2019 citing Vladimir Romanovsky, Professor of geophysics, and his team at the University of Alaska Fairbanks). These are some observable effects that scientists had predicted in the past and are now happening. (NASA, no data).

Another study (cited by Piper, 2019), although not a peer-reviewed one and comparatively nowadays "more alarmist" than the IPCC report, headlined the problem of climate change with – "Will climate change kill everyone — or just lots and lots of people?" In hindsight, Piper opined in that article that climate change framed as an existential threat in the present generation might move people and institutions to action.

Thus, the present study will help identify the barriers to keeping individuals from doing their part with climate change.

Notably, it will generate valuable data on motivating people to perform meaningful pro-environment actions as IPCC warns (and simultaneously advocate for simple lifestyle changes and behaviors) of the dangers of letting global average temperatures go beyond 1.5°C. (McGrath, 2018, cited in the IPCC report). These may also allow us to change immediately or positively reckoning on how we communicate and educate (or inform) the public and, at the same time, give the individuals the recognition of being an essential part of the solution(s) to the problem of climate change.

Limitations of the Survey Study

This survey type, essentially Part 2 of the whole study (in search of climate change exemplars) (was) conducted at the University of the Philippines Los Baños amidst the pandemic using convenience sampling and helped by a research assistant in the area. Conclusions may only be made specific to the students at this university and may not apply to the whole province of Laguna and outside of the province. Likewise, the results depend on the information that all respondents are willing to provide. Future researchers may opt for a broader scope initiative to determine significant personal carbon footprint estimates and "knowledge" tests, which are important antecedents to environmentally friendly behaviors or actions.

Initially, the present researcher dreamt of an actual "global study" capable of comparing and contrasting developed and developing countries' responses to climate change as per IPCC recommendations mentioned earlier. The physical access to the data is limited and the financial constraints involved in enacting a global study on individuals' responses to climate change. Hence, this study focused on conducting a micro-survey at the University of the Philippines at Los Baños Laguna to overcome these restrictions.

Future studies by other researchers using the same type of research metrics or approaches may then implement (beliefs and actions in climate change surveys) to consider their specific locale, language, wording, and other cultural differences. These future studies may profoundly affect or produce a more global picture vis-à-vis promoting and acting on pro-environment actions and opportunities worldwide. Thus, the comprehensive and yet discrete data based on these specific locales may help us see the study's global scope or perspective taken as a whole. This study is not to discover new knowledge but rather to examine the various assumptions about the disconnect between environmentally friendly actions and climate change beliefs.

"When you are surrounded by something so big that requires you to change everything about the way you think and see the world, then denial is the natural response. But, the longer we wait, the bigger the response required."

Paul Gilding

"It's worth remembering that it is often the small steps, not the giant leaps, that bring about the most lasting change."

Queen Elizabeth, in her Christmas message

Chapter 2

THEORETICAL FRAMEWORK

Connecting the dots between Beliefs and Environmental friendly Actions: A Literature Review

This literature review aims to determine whether there is a disconnect between beliefs and actions related to climate change. Whether among an endless array of examined "barriers" to environmentally friendly actions of past and present studies (and notably ones that will form the scaffolding of this review), selecting one or two of these variables will enable us to connect beliefs with those of environmentally friendly actions.

As far back as 2011, Gifford posed this query:

Thus, the question remains: What limits more widespread mitigation, adaptation, and sustainability actions on individuals for whom such actions are feasible?

Dragons of inaction

In the *Dragons of Inaction: Psychological Barriers that Limit Climate Change Mitigation and Adaptation* (Gifford, 2011), Professor Gifford laid down a virtual selection menu of psychological and other reasons (i.e., structural barriers too, which are entirely beyond one's capability; for example, one's inability to afford a solar panel) for these actions on climate change.

The psychological barriers are those Gifford mentioned as posing barriers to individuals' environmental actions and yet are within the individual's control, unlike structural barriers. He outlined seven general psychological barriers and 29 other "species" (Gifford, 2011), falling under the seven classifications.

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